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# ***JPRS Report***

## **Soviet Union**

### ***AVIATION & COSMONAUTICS***

No 5, MAY 1987

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## SOVIET UNION AVIATION & COSMONAUTICS

No 5, May 1987

[Except where indicated otherwise in the table of contents the following is a complete translation of the Russian-language monthly journal AVIATSIYA I KOSMONAVTIKA published in Moscow.]

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## A COMMANDER'S INITIATIVE AND CREATIVITY

Moscow AVIATSIYA I KOSMONAVTIKA in Russian No 5, May 87 (signed to press 1 Apr 87) pp 1-3

[Article by USSR Honored Military Pilot Col Gen Avn A. Borsuk, air force deputy commander-in-chief for combat training]

[Text] It has already been over 40 years since the Great Patriotic War ended. It was on that glorious May Day that a soldier concluded the chronicle of the bloodiest of all wars by raising the red banner of Victory over the subjugated Reichstag. Under the guidance of the Communist Party the Soviet people and their valorous armed forces defended the honor, liberty and independence of the Motherland of October, accomplished their great mission of liberation and fulfilled their international duty.

It was for almost 4 years that the fire of war glowed on the Soviet-German front. Difficult and lengthy was our path to victory. Our people endured colossal sacrifices in behalf of the defeat of fascism--the monstrous issue of the darkest forces of imperialism. The motherland lost 20 million of its best sons and daughters in this war. No other country could have endured such improbably difficult trials. But beneath the shadow of the victorious banner of Lenin, and under the guidance of the party of the communists which he created, the heroic Soviet people and their army prevailed in the mortal struggle with the aggressor, withstood the most brutal deprivations, and vanquished.

Contrary to the designs of bourgeois politicians, the Soviet Union came out of the war even stronger, and its armed forces transformed into a mighty bulwark of peace on earth. We have not forgotten the lessons of history.

Imperialist forces of aggression and reaction led by the USA have not abandoned their delirious ideas of forcing the USSR and the countries of the socialist fraternity to their knees through direct military pressure. This situation compels us to keep our powder dry, to study the experience of the past war, to reinforce combat readiness in every possible way, to creatively approach solution of the problems that arise, to thoroughly study the possibilities of weapons and combat equipment, to persistently improve the tactics and methods of armed struggle, and to introduce all the better things discovered in the course of combat training into the training process.

The routine work days of our military airmen are filled with creative labor. Analysis of the combat training of units and subunits in the winter training

period would show that its intensity and the rate of growth of the personnel's occupational proficiency have risen significantly. The energy of ideas is being transformed persistently into the energy of practical actions. But what we have achieved is not the limit. There can be no boundaries to improvement of combat readiness. The rhythm of life determined by the 27th CPSU Congress does not permit us to work today in the way we worked yesterday. We are faced by great tasks and important works, which we cannot carry out unless we fundamentally restructure all of our activities. And as the party emphasizes, this restructuring must be carried out on the move: We must try to achieve qualitative shifts in our military work every day. And this in turn is possible only through the purposeful activities of military personnel and through improvement of the style and methods of their work.

The modern aviation complexes with which air force formations and units are armed today possess great tactical and fire capabilities, which raises the significance of every aircrew in combat and imposes high requirements on the occupational training of commanders, aircrews, engineers, technicians and rear services and communication specialists, and on improving operational skill and tactical proficiency. It would be wrong not to recall here the idea, stated at the January (1987) CPSU Central Committee Plenum, that restructuring requires all workers to display competency, high professionalism, initiative and creativity. Initiative and combat aggressiveness are among the principal fighting qualities, ones which will never fade in their importance. The reverse is more likely: The more complex the aviation equipment and weapons, the more complex the forms and methods of their application in combat and the greater the role of the human factor in combat. And this means that the significance of the creativity of every military airman, and all the more so of the commander, unquestioningly grows.

Experience shows that success follows those pilots and commanders who are trained to carry out tasks one grade above the position they occupy. In other words if we are to display initiative and creativity, especially in tactics, we must have a certain freedom of thinking and action. In the absence of independence, their cannot of course be any discussion of creativity, and all the more so of initiative.

During a certain air tactical exercise the crew of a bomber headed by Military Pilot 1st Class Major A. Ivanchenko had the mission of striking an important simulated enemy objective. During the preflight preparations the airmen carried out all the necessary calculations. But the situation changed abruptly in the air as the airplane approached the training ground. This did not confuse Major Ivanchenko. Correctly estimating the new situation and its capabilities, the crew made corrections in the plan of its actions and made an accurate strike using a different kind of maneuver. The mission was fulfilled.

Here is another example. Major Ya. Borko, the leader of a pair of fighter-bombers, was given the mission of annihilating a ground target with missiles from a dive. According to a weather scout the meteorological conditions in the vicinity of the training ground favored fulfillment of the mission. But by the time the pair reached its prescribed area the weather deteriorated. Under these conditions it was impossible to act according to the plan drawn up

on the ground. Major Borko communicated a new decision to the flight leader at the training ground: He would attack the target from beneath the clouds and carry out a less-demanding maneuver. On receiving the "green light," he and his follower flew right to the target and hit it on the first pass.

Unfortunately there are also examples in air force units where even top-class pilots are sometimes unable to quickly and clearly estimate the aerial or ground situation when it changes, and to make a good decision. This inevitably leads to second passes and a longer time in the vicinity of the target. I think that this happens because in the course of planned flight training some commanders unjustifiably simplify the assignments they give to their subordinates and limit their independence just to play it safe. We still frequently encounter cases where even experienced pilots prepare for their sorties in the old way, they work out their assignments on the basis of a preapproved template, and they are reprimanded by their commanders for deviating from it. And yet in a real combat situation pilots must make the decision to utilize a particular tactic or maneuver independently. And then success would depend entirely on the pilot's training and initiative, and on his ability to act without coaching from the ground.

It should be emphasized in this connection that commanders are doing the absolutely right thing when in their demands that their subordinates comply in the strictest possible fashion with the rules of flying, they do not constrain their initiative by excessive interference, they show constant concern for the development of tactical thinking and flying professionalism, and they teach them to act purposefully, thoughtfully and creatively in all cases.

Initiative and creativity.... These qualities do not come to a person automatically. They are the result of high professional skill, and the entire system for providing combat training to air units and subunits is directed at developing such skill. During their combat training the aircrews deepen their knowledge of aviation equipment and practical aerodynamics, they improve their piloting skills, they study their opponent's tactics, and they develop ideological convictions and psychological steadfastness.

Participation in tactical flying exercises is the highest form of training for aviation personnel. Such exercises test not only the combat readiness of the units and subunits but also the ability of commanders to control combat activities, to estimate the situation quickly and accurately, and to make grounded decisions.

The experience of the leaders of the socialist competition persuades us that the personnel of subunits in which commanders organize the training process in accordance with the end goals of their tasks are capable of demonstrating tactical flexibility, initiative and creativity. For example combat training is organized in the military collective headed by Officer A. Kopytov in such a way that every crew, pair and flight becomes fully prepared for combat activities in a concrete situation, and so that every air warrior acquires a good knowledge of the tactics and possibilities of his own equipment as well as the tactics of the potential enemy, and his strong and weak sides. The command constantly shows concern for creating a complex, dynamic situation in tactical flying exercises, one requiring commanders to make nonstandard

decisions and to carry out aggressive and bold actions in response to countermeasures by a strong, well-equipped opponent utilizing the entire complex of the resources of armed conflict.

If we wish to teach personnel to be resourceful and to act independently in combat training missions, we must create target situations at fire and tactical training grounds simulating the probable enemy with regard for the weapons and combat equipment he possesses and the methods by which they will be employed, and we must outfit the training grounds with objective monitoring resources. Frankly speaking, in this regard things are not all as they should be. We still frequently encounter cases where the target situation at training grounds is not changed for long periods of time, the flight routes are known to the crews down to the tiniest details, and the exercises do not require tactical keenness. When things are like this, there can be no growth in the combat proficiency of the crews, and considerable material resources are wasted. Simplifications in combat training are an evil that must be fought decisively.

Experience shows that the instructiveness of exercises rises when units and subunits of other arms and services are invited to participate in joint actions and to simulate the opposition. A situation as close to that of real combat as possible is created in such a case. In particular this method has been widely employed by army and fighter-bomber aviation. Commanders of aviation and ground subunits unanimously agree that everyone benefits: both those who interact, and those who simulate the opposition. The experience of such exercises could hardly be substituted by theoretical lessons.

Careful preparation of the leader, his staff and the entire middle-level administration for exercises has great significance to attaining maximum effectiveness in such exercises, and consequently to developing the initiative and creativity of commanders. It is very important to find and utilize, right during development of the plan for the tactical flying exercise, those forms and methods which would encourage participants to be creative and which would raise interest in improving their combat proficiency. The content of the exercise plan goes a long way in determining its instructiveness.

This is something they always remember for example in the regiment headed by Guards Colonel V. Labkovskiy. When they prepare for tactical flying exercises here, they try to represent in the plan the most important problems of the combat and psychological training of the airmen, and of clear control of crews, subunits and tactical groups. A group of competent officers headed by the regiment commander participates in the plan's development as a rule. The commander's high responsibility, enthusiasm and purposefulness are a good school of occupational proficiency for his assistants, one in which the important principle of a commander teaching his subordinates is practically realized. The commander himself also benefits from taking part in making the decisions and planning the exercise, since this work requires him to deeply think out the goals and tasks of the subunits and the objectives they must reach as a result of the tactical flight exercise.

Discussing development of the initiative and creativity of aviation commanders, it is important in my opinion to turn attention to the following



point. A tactical flight exercise is especially instructive when it does not repeat things that had been done before. The elements of novelty are precisely what make an exercise interesting to an aircrew. In this case the students need to be placed in nonstandard, complex situations, and tension must be constantly increased by introducing various scenario inputs--for example use of mass destructions by the "enemy", his conduct of aerial and space reconnaissance, attacks by his sabotage groups, destruction of landing strips, breakdown of radio communication as a result of electronic warfare and so on, all of which corresponds to the nature and conditions of modern combat. Thus the personnel are compelled to display independence, initiative, decisiveness and resourcefulness in fulfilling their tasks.

It must be noted unfortunately that instructive situations are not always created in all exercises. Sometimes it is difficult to distinguish a tactical flight exercise from routine planned flying. This pertains especially to engineers and technicians. It is rare to observe engineers, technicians and mechanics performing first-line repairs or decontaminating aviation equipment during tactical flight exercises. Strange as it may seem, "weighty" justifications are offered for simplifying the situation in exercises. Concern for flight safety is one of them. Let us be frank: Such sentiments are nothing more than excuses behind which chiefs hide their indifference to their work and their lack of initiative. Both forms of behavior are identically harmful, and in both cases they must be subjected to strict, principled and clear-cut assessment.

Strong coordination between aviation and other arms and services is a precondition of the success of combined-arms operations and combat today. This is precisely why we need to conduct integrated exercises, and why we must rehearse practical coordination of aviation, tank, motorized rifle and artillery subunits and air defense forces at the same training grounds in flight training exercises in which real fire and missiles are employed.

Nor should our plans for airman combat training ignore the fact that peacetime viewpoints on combat use of aviation cannot fully resolve the question as to whether a given combat tactic would be suitable or not. Tactics are confirmed or rejected in the course of combat activities with a real opponent. In this connection I would think that it would not be excessive to recall that the combat experience of aviation in the Great Patriotic War and in local conflicts has everlasting significance. It must be carefully studied, and it must be introduced into combat training practice in such a way as to permit swift change in tactics in correspondence with change in the situation and with regard for new equipment and weapons.

To possess developed operational and tactical thinking means to orient oneself quickly in the dynamic situation of combat and within the complex interaction of different phenomena, and to account for all factors affecting the outcome of a battle. This is the main objective sought by the commander's multifaceted activities aimed at developing the ability of the students to isolate the most important things from the information they receive.

Learning to correctly determine his place in combat activities is an important task of an aviation commander. The commander must locate himself wherever the

greatest volume of information is collected and wherever its fastest and most accurate processing in support of the correct decision is required. To competently control a battle means to use available men and equipment to achieve maximum success and prevent losses. As an example when all subunits of a fighter-bomber regiment are to take off simultaneously, the regiment commander would best take charge of the combat formation himself, and control the subunits from the air. But when the subunits are to take off separately and the actions of tactical groups are to be disposed in depth, it would be better to maintain control from the unit command post. It is important for the commander to know that the choice of his place is also affected by the depth of the assigned mission. In other words he must master the art of controlling combat with regard for the mission, for the nature of the enemy's actions and forces, and for possible variants in the way the situation develops. One thing is clear: In all cases he must organize control with the assistance of the staff in such a way that he could monitor his subordinates consistently and continuously in all stages of combat and in any situation.

As we can see, initiative in combat is one of the most important components of victory. But at the same time this quality is a derivative of many factors. Only he who is ideologically mature and who possesses firm moral and psychological qualities and high tactical flying proficiency is empowered to control these menacing and effective weapons. Perfection of aerial skills and developed tactical thinking make it possible to concentrate attention, knowledge and skills on the performance of a combat assignment under any conditions with the best results the specific situation allows. Developing resourceful, aggressive air warriors is a necessity today if we are to preserve the life and happiness of our people.

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## ORIGINS OF AERIAL TACTICS EXPLORED

Moscow AVIATSIYA I KOSMONAVTIKA in Russian No 5, May 87 (signed to press 1 Apr 87) pp 4-5

[Article by Lt Col G. Drugoveyko, military pilot 1st class: "The Birth of a Tactical Procedure"]

[Text] Captain V. Shcherbina was forced to engage in combat without a tactical advantage. The rivals maneuvered unsuccessfully at maximum acceleration, attempting to get into position to use their weapons. Then suddenly Shcherbina recalled reading some time ago about a dogfight in which a certain Soviet pilot participated during the war.

Attacking a group of fascist aircraft, because of a mistake in performing a maneuver our pilot found himself right in front of the enemy's nose. Another second and the airplane would be shot down. But the rule by which this Soviet pilot lived was that combat was a time to fight, and not to think about defeat. He made his decision instantly: He would turn into the enemy, press all of the triggers and rock the aircraft violently from side to side. A fan of fire burst out toward the Germans, creating the impression that they were being attacked by a large group of Soviet airplanes. The fascists scattered in all directions, and the combat formation was broken. The Soviet fighter found itself right in the very middle. Catching a Messerschmitt in the cross-hairs, the pilot brought it down with an accurate shot.

But of course in the training battle Shcherbina was not able to recall all of the details of that engagement. The principal idea of combat flashed through his mind--he had to take the risk! And that is what Captain V. Shcherbina did: He slowed up for just a few seconds. His "adversary" could have opened fire, had he foreseen the possibility of such an illogical act. But he did not second-guess Shcherbina's plan, and he was unable to capitalize on his temporary advantage. In contrast to his "adversary," V. Shcherbina, who conceded the initiative for that instant, was certain that soon it would transfer to him. He also realized that he would have but a few seconds to take aim, but he was ready for this, because he was essentially in control of the situation in the air. And he won the battle.

Officer I. Grishalevich was given the task of organizing a search and destroy mission in a region dominated by strong "enemy" air defenses. After making his preliminary calculations with regard for available forces, the group commander realized that the effectiveness of this tactic would be low, and that the "losses" might be high. He asked his superior to relieve him of this

task, but he was firmly told to proceed.

Back to the drawing board. There were many ways to fulfill the mission, but Grishalevich discounted one version after the other. "What is it that is keeping me from solving this problem?" Grishalevich asked himself. And suddenly it became clear to him: He had fixed it in his mind that the mission was impossible. This is precisely what caused his thinking to lock itself in a circle of unending contradictions.

A rule he once heard about that experimenters in physics follow broke the circle: If you don't know what to do, just do something. The shackles that kept him tied to the vicious circle fell off. The commander decided to organize his search in the form of a net cast over the entire region in one surprising movement. To help out the principal "hunters," he got some other crews to fly routes from which they could scope out the search and destroy region. As a result the effectiveness of the mission was significantly higher than the statistical average. Grishalevich was especially pleased by his conversation with his senior commander.

"Thank you. That was excellent! I did not have very much hope for your search and destroy mission. But it was extremely important to distract the 'enemy's' air defenses from aircrews performing another mission. You helped your neighbors, you inflicted 'losses' on the 'enemy,' and you yourself did not suffer any 'losses.' Please communicate my gratefulness to your 'hunters' from me and your neighbors."

Let me cite one more example, instructive from my point of view, characterizing the manner in which tactics are born in the air. Once a tactical control officer cautioned Major A. Mashchenko that a group of "enemy" airplanes had appeared behind him at a range close enough for missile launch. His first impulse was to immediately turn and face his rival. But he restrained himself from this maneuver when he recalled a recent discussion that was held in his subunit about the actions of fighters in a similar situation. They had examined many variants, all different and contradictory. No agreement was reached at that time. But now the situation demanded a choice.

Major A. Mashchenko continued flying on his straight path, carefully monitoring the range to the "enemy" and supplementing his prediction with information from the command post. His decision came to him an instant before the "enemy" used his triggers. He immediately radioed a command to his following pair:

"Sixteen, turn left.... Maximum acceleration!"

In the meantime Mashchenko led his pair in an energetic ascending maneuver in the opposite direction. The pilot knew that it would be difficult for his rival to gather his wits. Instead of an easy victory, his rival was faced with solving a difficult tactical problem requiring immediate answers to questions like: What is the intent of the defenders, what information do they have that makes their actions so confident and coordinated, and what countermeasure should be taken?



With time extremely short, the "enemy" decided to pursue the airplane performing the horizontal maneuver. This was not successful, because he could not fire at such a large angle of approach. And although the pursuit went on, the fate of the duel was clear. By this time Major Mashchenko had assumed an advantageous position. A missile volley finished off the attack.

Let us briefly analyze the examples of aerial training combat presented here. In the first case the tactical procedure was devised on the basis of an element of risk, the necessity of which was suggested by the experience of the past war. In the second case the problem was solved when the commander surmounted his feeling that solution was impossible. The third combat tactic arose as a result of prior discussion of situations similar to that in which the pilot found himself in during combat. The one thing that is common to all of these cases is that the tactical problem was solved on the basis of an accurate estimate of the situation, deep analysis and correct conclusions, but something outside these individuals, something that did not have a direct relationship to the situations in which these aerial warriors found themselves in was the "starting gun" that got the tactical thinking going.

Let us try to trace the general pattern of a pilot's thinking in combat and the manner in which he arrives at a tactical decision. Experience shows that this pattern is approximately as follows: revealing the problem, logical analysis, suggesting possible variants of action, selecting the most feasible of these variants, and then mentally shaping the decision into a plan of action. But this is only the most general pattern. Things are significantly more complex in real thinking because professional experience is an integral mental construct. It is sometimes very hard not only to predict but also to reconstruct precisely which component serves as the trigger that sets the search process into motion. But the difficulty of penetrating into the secrets of the thinking process does not preclude the search for ways to improve a pilot's tactical thinking and to train various mental operations--analysis, synthesis, analogy, association, intuition, forecasting, prediction. On the contrary it makes this search absolutely necessary.

The conclusion that we reach from these considerations is obvious: To prepare an air warrior means to comprehensively develop his personality while naturally focusing the main efforts on special qualities, and chiefly tactical thinking.

It cannot be doubted that all commanders and pilots believe tactical training to be the principal discipline. Much training time is devoted to it. But is the effectiveness of the lessons always high? Take as an example some typical questions that I managed to hear during a short exercise conducted in the subunit in which Officer K. Burtsev serves: Identify the technical specifications of the principal fighters of the probable enemy; the composition, deployment and vulnerable points of antiaircraft missile complexes; the sighting rules followed when attacking a target on the ground.

It is completely clear that such a lesson would never add to the tactical proficiency of the pilots, and that there can be no hope for developing new tactics in such an atmosphere, inasmuch as all this exercise did in the best

case was to test the memory.

It is of course impossible to offer tested recipes for development of tactical creativity. But the experience of the best commanders provides many valuable things. Thus it has become the rule in the unit in which Officer Ye. Tikhomirov serves to conduct a detailed critique of the most instructive training dogfights. Not only the end results but also the course of the fight are analyzed, and engagement of the enemy is analyzed especially carefully. There is good reason for this, because the history of the combat activities of aviation persuades us that victory evolves mainly in the first few moments of an engagement. This manifests itself especially strongly when guided and homing weapons are employed.

It began to be evident in the subunit commanded by Major Yu. Priymak that the more time they spent studying the principles and rules of aerial combat, the lower the interest in them became. A paradox was created: Tactical premises which embodied the experience of combat activities in fact ceased to be an influence on growth of tactical proficiency. The commander came up with the idea of devising a very simple tactical trainer based on the principles and rules of combat. His idea soon materialized itself in, of all things, a especially prepared classroom chalkboard (see table).

Principle or Rule of Combat	Situation in the Air	Variants of Implementing the Principle (the Rule)			Best Variant
		No 1	No 2	No 3	
A	B	C	D	E	F

Let me briefly explain the use of this trainer. Let us assume that we are examining one of the principles of combat--aggressiveness. We write it in column A. In column B we draw the aerial combat situation in relation to which this principle must be applied. The participants of the training are given some time to think the problem out, after which they write their solutions down in their notebooks. After this, three pilots are allowed to propose their variants on the chalkboard in columns C, D, E (there can be more columns). Next, each variant is discussed by the group, and an expert assessment is made and the best variant is selected by a group vote. This method of tactical training may seem ludicrous to some. But do not jump to conclusions. The fact is that such a trainer incites passionate debates. Many tactical innovations arise unexpectedly. After being tested out in the air, they supplement the tactical arsenal of the subunit, and then of the entire unit after passing through the crucible of a tactical flight exercise. What is important here is that Communist Yu. Priymak is tuned to seeking ways of improving tactical skill, of finding effective solutions to tactical problems without waiting for instructions from above. This is an indication of a mature commander, one who understands well that tactics are the other weapon of an air warrior.

Every airman knows how much rich material for development of tactical thinking and boldness in combat can be found in memoirs. After all, memoirs were

written not by people who simply fought with the enemy but those who emerged victorious in the air, those who not so much "outflew" the enemy as "out-thought" him. This is precisely why Guards Lieutenant Colonel A. Gunko, a master of aerial combat, himself works with a specially selected list of memoirs by aces of the Great Patriotic War, using them as he would textbooks, and why he organizes such work with his pilots. Training for combat doubtlessly presupposes deeply thought-out specialization foreseeing not only a tactical education but also comprehensive development of the personality of the air warrior. It is at this that the entire system of ideological, theoretical, professional, psychological, intellectual and physical training must be directed.

I think that the time has come to develop modern training aids that would account for all factors associated with real combat: air tactics themselves, psychology, the war game element, and the rivalry of the participants. Such training aids should obviously model combat conditions to the maximum possible extent. For the moment there is one shortcoming inherent to most of these training aids: a tendency to rely on academic fundamentals. Tactical training should be based not on the laws of armed conflict in general but rather on highly specific, tactically precise, psychologically saturated problems that encourage pilots to engage in professional creativity both in the classroom and in the sky.

The entire professional, intellectual and life experience of the pilot is the charge which gradually accumulates in the course of purposeful enquiry on the ground and which transforms at the needed moment into the energy of action in the air.

A tactical procedure invented and implemented in combat is an explosion of creative thinking. And the more explosive of this kind the pilot possesses, the stronger is the energy of the explosion. But the dependability with which this "device" goes off depends on how multifaceted the airman's ties with the "fabric" of combat are, on how diverse the general potential of the air warrior's personality is.

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## FEAR OF RETRIBUTION STIFLES INITIATIVE

Moscow AVIATSIYA I KOSMONAVTIKA in Russian No 5, May 87 (signed to press 1 Apr 87) pp 9-11

[Article by Maj A. Zhilin: "The Fear of Jeopardizing One's Position"]

[Text] Squadron commander Major A. Zotyuk was bent over the table, thoughtfully looking at a map spread out before him. There was something to think about. During the tactical flight exercise the umpire had given him the task of annihilating an important "enemy" objective. How was he to get the job done?

Analyzing the situation that had evolved on the battlefield, Andrey Tigranovich concluded that there were two ways to complete the assignment. One was a customary procedure frequently used by the airmen in the course of routine flying: approach the firing range at moderate altitude, simulate evasion of air defenses with a certain maneuver, and then make the strike under ideal conditions, with no chance of failure. The other way was more complex from the standpoint of both the tactical preparedness of the crews and their flying proficiency, inasmuch as the assignment would require flying at minimum altitude, energetic maneuvering to surmount air defenses, attack of the target from different directions and so on.

One would think that there was nothing for the squadron commander to think long and hard about, since the conclusion was obvious: He needed to use the second variant, since it would put the "enemy" in a difficult position. It would be more effective, moreover not only in a tactical flight exercise but also in combat conditions. But Major Zotyuk wavered, despite the fact that his doubts were generally groundless.

"On one hand the second variant is more suitable," Andrey Tigranovich thought, "because it creates a situation for the crews that is as close to real combat as possible. Consequently it would improve the skills of the aircrews. But on the other hand there is more chance of making mistakes in a complex situation. And if things fall apart somewhere along the way, I would end up being the target. I would be showered by accusations of excessive initiative, adventurism and other sins, just like last time when I decided to do something different and approach the range at minimum altitude. I almost lost my job because of that. Maybe it would be better not to tempt fate, all the more so because we are being graded chiefly on the basis of tactical use," the squadron commander decided, and he went off to carry out his task.

The tactical flight exercise came to an end. The crews had fulfilled their mission on the basis of the first variant, the simple one. All targets were hit with a score of at least four. Some crews even earned words of gratitude from the regiment commander. It seemed that the airmen had all reasons for being pleased with their success. But many of them did not experience this satisfaction. There were probably several reasons for this, but one of them is undebatable: Most of the air warriors knew that the scores received in the tactical flight exercise did not reflect a real combat situation, in which losses would have been unavoidable.

Who was to blame for this? The answer is clear at first glance: the squadron commander, of course. It was he, after all, who failed to display adequate persistence, creative initiative and observance of party principles. But let us not jump to conclusions. Instead, we should ask the question: Why did the squadron commander decide to take the path of least resistance?

Ask squadron commanders if they are provided very many possibilities for displaying initiative, for acting in a manner that they feel necessary in the course of routine flying, and all the more so in tactical flight exercises, and many would probably reply that they have almost no possibility for doing so. Moreover in the recent past, and oftentimes even today in some places, independence can reap so much unpleasantness that one is forced to think that taking the bull by the horns would only mean suffering criticism later on. This in particular is what happened with Major A. Zotyuk. Having once suffered mightily for displaying independence, he could not surmount the fear of jeopardizing his position.

The fear of jeopardizing one's position.... The anatomy of this phenomenon, revealed by the sharp plow of restructuring, which is so merciless toward shortcomings, is not simple. It must be analyzed if we are to destroy all of the agents by which this social evil is spread, an evil from which both our common effort and each of us separately suffer. But it is clear to us today that negative phenomena such as pretentiousness, deception and the desire to substitute wishes for reality have served as favorable soil for its appearance and development.

Sparing neither time nor effort, some chiefs who were unable to see beyond the walls of their own offices imposed their will upon their subordinates and displayed narrow and stagnant thinking, while sending glowing reports and assurances to their superiors. They offered the surrogate up as the real thing, and without anyone's awareness they instilled in their subordinates the habit of thinking in the standard, stereotypic, one-sided way. And whenever a fresh idea, a sense of something new broke through suddenly somewhere, it was met with caution: We must be careful, or something bad might happen.

Loss of independence, of the boldness and readiness to make vital, nonstandard decisions that were so typical of the commissars of yesterday: Is this not the price we are sometimes forced to pay for the recent attachment to formality, to pretentiousness, to a passion for fighting paper wars?

Once while visiting the garrison in which Officer V. Vladimirov serves I observed the following scene. It was supposed to be a day of preflight

preparations, but the pilots, navigators, engineers and technicians, armed with brooms, rakes and shovels of all things, were hurrying to "spruce up" the military station.

"What's going on?" I asked one of the officers. "Isn't today reserved for preflight preparations? Is this not a bad time to pull people away for housekeeping chores? This is the grossest violation of flight regulations and flight safety."

"This is no time for the regulations. A commission is landing here in 3 hours to check out the personal conditions. You know what would happen if we didn't clean things up," he replied as he made a meaningful slicing motion across his throat with his hand.

As the airmen painted the entry gate and other structures, the garrison leaders were diligently solving another "urgent" problem--whether to cover the shoulder of the road with sand or lay sod. One curious sight was the officers' housing: Only the side of the housing that faced the road on which the commission might travel was whitewashed. I found this to be a discomfoting sight.

Thus we had a paradoxical situation. The personnel, including executive officers, were boiling with indignation, so to speak. They were angered that they were forced to do things contrary to the regulations, that considerable material resources were being wasted. And yet not one of them would dare to speak out against the whitewashing. Even though many of the airmen were communists. Alas, party conscience was apparently unable to compete honorably with the fear of jeopardizing one's position.

But what about the commission? Judging from everything, it liked the exterior gloss of the installation, though the effort at deception could have been missed only by someone who did not wish to notice it. This begs the question: What use is a commission that evaluates personal conditions on the basis of the freshness of sand along the roadside, rather than on the basis of, for example, how well the soldiers or officers are shod, dressed, fed and quartered?

There is one other social and moral aspect here. "Who's coming?" a young navigator asked incredulously. "A chief with a party ticket in his chest pocket, or a landlord surveying his domain?!" These words compel us to think about many things. And mainly about the fact that what makes a communist great is not his position and title but his principles, high competency in the work he must do, boldness, a yearning for improvement, responsibility, and simplicity and modesty in communication with people.

On this background of phenomena unworthy of our society, people attach especially great value to leaders who have never betrayed Lenin's principles of collective leadership, who have performed their duty honestly, and who have displayed political maturity, wisdom, persistence and courage in solving problems.



Indicative in this respect are the activities of Lieutenant Colonel E. Bagdasaryan, who until recently served as the commander of a separate technical airfield support battalion. There were once many problems in supplying certain foodstuffs to the airmen at the garrison in which the officer served. Eduard Akunovich took on the problem on his own, without waiting for outside help. In many ways owing to the efforts and unending energy of this person, the unit erected a fabulous greenhouse which now provides vegetables year-round not only to the servicemen but also to their families. A little later the unit used its own resources to build a livestock complex outfitted with modern equipment. Milk and meat appeared in the garrison. Lieutenant Colonel Bagdasaryan found the possibilities and resources to pave the streets in the housing compound reserved for helicopter crews. Life became better for the people, and they began to work more conscientiously. The connection here is direct and obvious.

But some people stubbornly refused to take note of any of the changes for the good. Some chiefs accused Eduard Akunovich of all kinds of things. He was forced to endure countless commissions in the defense of his initiative, of his concern for people and, in the final analysis, of his desire not to "live on the dole," his decision not to stand around helplessly but to solve the problem himself. Absurd, isn't it? But if only this were just an isolated case.

It was hard in these conditions for the officer to prove that he was right, and all the more so to continue his useful activity. I remember one of his colleagues--the commander of a battalion in a unit that did not even possess a subsidiary farm, making an uncomfortable joke of it to Eduard Akunovich:

"You're troubling yourself over nothing. No one is going to praise you for the good things you do, so take an example from me. Our unit has nothing, and that means there is nothing to reprimand it for."

But Lieutenant Colonel Bagdasaryan would not accept these arguments, and he did not let his troubles get him down. On the contrary he tackled his efforts with even greater enthusiasm.

Time sorted everything out.

And this is inescapable, inasmuch as a good initiative will always prevail in the end. And Eduard Akunovich's services were finally assessed on their merits--in the kind thoughts of the people who are now living in the garrison. Could there be any reward greater than this!

What is valuable about a person who stirs up the customary distribution of roles and who not only considers his job description but also looks beyond it? Concern for the common good is what makes him valuable. This concern does not allow the conscience to doze, and it dictates the methods of action.

What "medicine" can kill the virus of the fear of jeopardizing one's position, the virus of adaptation? An answer to this question can be found in the January (1987) CPSU Central Committee Plenum. First of all we need to instill those entrusted to be leaders with high moral qualities, ones which would

justify their right to lead subordinates. And this is possible only if we develop criticism and self-criticism, if we raise party responsibility for assigned work and for unfailing fulfillment of official responsibilities. And, it stands to reason, if we strictly monitor and check execution of orders, and improve the forms and methods of working with personnel.

Over the long years, many have become accustomed to covering their mistakes with the convenient word "we." Time passes, and they beat their brows in dismay: Ah, we missed the chance, ah, we were too late.... But who specifically missed the chance, who was too late? Is it not time to stop hiding behind the plural, is it not time for each person to assume personal responsibility? As Comrade M. S. Gorbachev, general secretary of the CPSU Central Committee notes, we must not try to affix blame for our mistakes elsewhere. We must question ourselves first, we must be the first to assume the task of following our conscience in all things, of making ourselves more responsible to ourselves.

To restructure means to surmount inertia and indifference, to assume the entire burden of responsibility for quality execution of military duty.

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## CARING INSTRUCTORS DEVELOP GOOD PILOTS

Moscow AVIATSIYA I KOSMONAVTIKA in Russian No 5, May 87 (signed to press 1 Apr 87) pp 16-17

[Article: "Much Depends on the Instructor"]

[Text] The flight commander, the instructor, is the first mentor of young pilots. The development of the air warriors, and consequently flight safety as well, depends in many ways on his conscientiousness, his teaching skills and his pedagogical wisdom. The writers below, who sent the editor their responses to the article "The Sky Does Not Pardon Mistakes" by Lieutenant Colonel V. Antyufeyev (AVIATSIYA I KOSMONAVTIKA, No 1, 1987), offer some thoughts on how to raise the effectiveness of flight training and prevent near-accidents in the air.

When Contact Exists, by Guards Lieutenant A. Govorov, Military Pilot 3d Class

I prepared especially carefully for the next flying assignment. Understandably so: This was to be a qualifying exercise, and my piloting technique was going to be checked out.

Officer O. Derzhavin took his place in the instructor's seat. Oleg Anatolyevich was known in our regiment as a master of tactics, an outstanding aerobatic pilot, and an exacting but concurrently sympathetic and responsive commander. One pilot had this to say of him: "Had we more such instructors, lieutenants would learn to fly twice as fast, and without near-accidents at that."

Our pair was now parked at the start of the landing strip. In the few seconds prior to turning on the afterburners I could feel my agitation abating; this meant that I would be able to complete my flying assignment well. We were to fly a predetermined flight path to the area where we would conduct our aerobatics. Before take-off the inspector and I went over the order of my actions in detail. A calm, business-like tone and clear, brief discussion of the fine details of the sortie helped to promote mutual understanding and a good aggressive mood. There was one interesting point. Oleg Anatolyevich conducted the discussion as if we had traded places--as if I was to be tester, and not he.

But this was all before take-off. There is no place for emotions in the air. The air is a time for maximum self-control. Performing banking turns with

afterburners on, revolutions, loops and half-loops, I tried to act as precisely as possible. And what was most surprising was that I had no sense of the instructor being behind me. Only during the vertical maneuvers did the tester occasionally urge me on:

"Steady, steady...."

And then a pause. And after performing another loop:

"Take it in..., good."

And never any reprimands, self-important utterances and moralizing. I received a high score for the flight, though I did not escape some criticism, which I perceived as sincere and kind advice from a senior comrade, an experienced pilot. It is no accident that this flight, which was very difficult in content, brought me a feeling of such elation, and served as a moral stimulant in combat training.

While my flying career is still rather short, I have worked with several instructors. I would like to thank them deeply for the knowledge they gave me. But mentors like Oleg Anatolyevich Derzhavin I had never met before. An associate of mine was right when he said that both the development of an air warrior and the "platform" of flight safety depend chiefly on the instructor.

Now that I am in the squadron, I have an instructor here as well. He is Captain Ye. Korneyev. He is a fabulous pilot, and I am learning many things from him. Yevgeniy Viktorovich teaches competently, understandably and persuasively, and he knows that an occasional rough word or rude gesture can elicit defiance and perplexity in the spirit of a student. And this keeps the student from concentrating, from evaluating his actions objectively, and from thinking about how to prevent the mistakes in the next flight. It has to be said that Yevgeniy Viktorovich and I have established the needed working contact. We try to work in such a way that this contact would grow even stronger.

It's Not Just Work, by Major V. Khokhlov, Military Pilot 1st Class

I can fully understand the feelings and experiences of young pilots who are just beginning their path in aviation. It seems not that long ago at all that I was in the same position myself. There were times when I was unhappy with my instructors too. But there is one circumstance here, an important one from my point of view, that should be discussed. The work of an instructor is not very easy. He must be responsible for not just himself. When certifying a pilot for flight he sincerely wants everything to go well for him, he wants him to love his profession, to take pride in it and to become a dependable defender of the motherland.

It is from this point of view that I think we need to evaluate the work of the man who sits in the back seat of a combat trainer. Consider after all that an instructor worries, feels things and even makes mistakes just like any other person. But the way he deals with these things is another matter.

I arrived at this conclusion from the example of my first instructor in a combat regiment, Captain V. Mikhaylov, a mature air warrior, and a dependable senior comrade. He never showed off his knowledge and abilities, he spoke with others simply, and he was sincere and concerned. We young pilots could sense his rock-hard strength, and we knew that we could learn many things from him. It is no accident that our flight soon became the best in the regiment. And what is very important, we flew without near-accidents.

Mistakes were made as well, of course. But none of us hid anything. We shared our sadness and joy with Valeriy Aleksandrovich, who was much older than us, as we would with our fathers. Such mutual relationships with the flight commander helped us avoid significant mistakes in the air.

I would like to emphasize the following. Captain Mikhaylov was not the kind of good-natured fellow who would slap you on the shoulder approvingly no matter what you did. Our commander reacted strictly to lack of discipline, laziness, carelessness and lack of initiative. In this way he promoted our fastest development not only as pilots but also as good people devoted to duty.

Time passed, and then I was entrusted with a flight. It contained lieutenants who had recently graduated from school. Hard combat training began. During the first flights I did not feel very comfortable in the back seat as an instructor--I had become accustomed to a warplane. In the beginning I adhered to the procedure Mikhaylov had used with me--I would not permit gross errors, but I would not grab the control stick on any pretext either. I tried to establish strong contacts and mutual understanding with my subordinates.

To be honest things were hard for me at first. Especially when we had to retrain for new equipment in our unit. We were still flying in our old pairs then. It was at this time that the instructor began to play a key role. It boiled down to many factors, and yet the most important was the human factor. Individual work with subordinates helped me to keep the people from becoming to self-assured, to keep them from making mistakes, and to ensure that they complied with the techniques of piloting the new airplane, and the requirements of the safety documents.

I am certain that a flight commander must not only be a top-class pilot but also a good teacher, and to some degree even a psychologist. This is something our job requires of us.

"All Right"--An Ambiguous Criterion, by Major K. Borisov, Military Pilot 1st Class

The instructor had barely stepped off the ladder when young pilot V. Kisternyy asked him: "How did I do?"

"You did all right, you can fly," the officer replied as he strode off in the direction of the tower.

Viktor watched him walk away in confusion, thinking in perplexity: "You can fly.... But how? Well or poorly? No, as long as he said 'All right,' that must mean I can fly well...."

Of course this was not what he would have wished to hear from an experienced air warrior. Kisternyy took his check flight after a long period on the ground, and naturally he wanted to know the opinion on his actions in the air in greater detail. Where and in what phase had he acted as the aerial situation required, what elements of the assignment were carried out better than others, and why? He wanted to know especially because he felt so constrained and far too tense in the air.

It stands to reason that the pilot could have analyzed his actions himself, and compared them with data from the flight recorder. But was this the way to achieve a maximally effective analysis, if we also consider that Kisternyy was still not a very experienced pilot? More than anyone else, a young aviator needs the sound advice of a senior comrade, and an objective analysis of his actions in the air.

"I'll need to ask the flight commander about the flight in greater detail," the pilot decided.

"How did your check flight go?" one of his bunk mates asked him.

"To be honest I don't really know," Viktor admitted.

"Oh, stop being so modest," his comrade said, giving him a friendly slap on the back. "I myself heard the instructor telling the squadron commander to plan a solo sortie for you."

"Seriously?" the pilot asked in disbelief.

"Quite. The commander's now in the classroom preparing the planning table for tomorrow."

And so it was: Opposite his name Viktor saw the familiar symbol for an independent sortie. All of his doubts vanished in an instant.

Kisternyy took off after being given permission to do so by the flight leader. On reaching the aerobatics zone he reported his position to the command dispatching point and began on his assignment. Getting a little ahead of ourselves, let me say that this time he was unable to complete it successfully. The pilot could not maintain a normal flying routine. Fixing his total attention on the instrument readings, he could not keep up on the situation in the air, or maintain his position within the aerobatics zone.

After he landed, the flight recorder revealed some other mistakes as well: The lines of the flight recorder program indicated that he had exceeded his roll and attitude angles during performance of aerobatic maneuvers, that his accelerations were excessive, and that his forward and vertical velocities were beyond permissible. Analyzing the flight, the squadron commander asked Kisternyy:

"How did you manage to make so many mistakes?"

In response the pilot could only shrug his shoulders in disbelief. And one can understand how he felt. Before that, he had received nothing but good grades in similar exercises, and therefore it was quite valid to assume that he had mastered the skills of piloting a warplane completely. Then what was the cause behind such a strange metamorphosis?

Obviously the check flight, and more accurately the absence of a detailed analysis of the pilot's actions by the instructor following the assignment, did not play the last role in the mistakes. In testing Kisternyy's skills in controlling the fighter, the instructor limited himself to just the single check flight; moreover he did not even conduct a detailed analysis of his actions. The teacher failed to take heed of the fact that as experience shows, tension, constraint and violation of the sequence of attention distribution among instruments are the most typical mistakes made by young pilots after an interruption in flying. These are the things that cause such a pilot to deviate from a prescribed flying routine.

The experience of flight work shows that problems of this kind cannot be eliminated by just a single check flight, and consequently that a single check flight cannot restore lost habits. In such cases the most experienced instructors--those who use the best training methods--plan one or several check flights with such a pilot, with regard for his individual features and his training level. And then it is not until after they thoroughly analyze the student's actions that they grant him the right to fly solo.

This approach does of course make progress in the program of assimilating an aerial weapon system somewhat slower. But many things are gained as well. The young pilot is able to work himself into his job not at "supersonic speed" so to speak, but gradually, in the course of several flying shifts conducted day or night in the appropriate weather conditions. This precludes formalism in his training, skills are raised to a higher level, flight safety increases, and the probability of repeating typical errors decreases. And if we add to this that losses of acquired habits become more tangible as the habits themselves become more unstable, the conclusion that this is a suitable method becomes quite persuasive.

We might end the discussion here, were it not for one circumstance. Why had the instructor failed to penetrate deeply into the pilot's preparation for his next flight? The fact is that Kisternyy was not one of his subordinates. The situation came about like this: The flight commander to whom the officer is subordinated was on leave, and in order to get the pilot certified the squadron commander ordered another comrade cleared to fly as an instructor to take the officer aloft. Unfortunately this teacher could not display adequate responsibility.

The hasty and unobjective decision reached by the instructor put flight safety in jeopardy and upset pilot Kisternyy's progress: He had to exert considerable effort to acquire his former confidence. Thus it happens that the abstract grade of "all right" is not all that harmless. It generates

indifference and complacency, and as a result it leads to gross errors and has an effect on flight safety. And on the other hand if after each sortie the flight commander makes an objective analysis of a student's actions, and leaves not even the slightest rough spots in piloting techniques unattended, success does not take long to make itself known. This is something we must always remember.

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#### AIR FORCE KOMSOMOL SETS PERSONAL EXAMPLE

Moscow AVIATSIYA I KOSMONAVTIKA in Russian No 5, May 87 (signed to press 1 Apr 87) pp 18-19

[Article: "Tuned for Work"]

[Text] An active assistant and a dependable reserve of the party, the Komsomol has confirmed by its heroic history and by its military and labor accomplishments today that it has the right to bear the name of the great Lenin. As was noted at the 20th Komsomol Congress, there is no area of communist construction in which the Komsomol has not glorified itself with selfless service to the fatherland.

The air force's Komsomol organizations greeted their supreme forum even stronger in organizational and political respects. As with all soldiers of the Soviet Armed Forces, young airmen unanimously support the domestic and foreign policy of the CPSU and the Soviet government and the measures they are taking to ensure the security of the USSR and countries of the socialist fraternity, and they are deeply aware of the significance of armed defense of socialist accomplishments and of their personal responsibility for fulfilling their patriotic and international duty in the face of the growing aggressiveness of the reactionary circles of imperialism.

The most important task of Komsomol organizations today is to educate courageous and competent defenders of the motherland, true patriots and internationalists boundlessly devoted to the Communist Party. An orientation toward specific practical works with regard for the restructuring effort, toward ensuring that every Komsomol member sets the example in combat and political training, in socialist competition and in discipline, and affirmation of an atmosphere of friendship and solidarity and a lively, truly youthful situation in the military collectives define the range of concerns of Komsomol organizations in the armed forces.

Every day of combat training is filled with examples of a selfless relationship of military aviators to military labor and to their assigned work. They are working very diligently to improve their professional skills in the sky and on the ground, and in fulfillment of Lenin's commandment they are making a real effort to study military affairs. Young people are making an increasingly greater contribution to raising the combat readiness of the units and subunits and to tightening discipline and order. Good initiatives are gathering strength. For example many good and useful things have been accomplished by the youth movement "Komsomol Concern for the Training Base!"



in the collective in which Officer V. Kovalenko is the Komsomol leader. Many valuable efficiency proposals were born here. The Komsomol members have manufactured various trainers, instruments and devices that help to upgrade the quality of the combat skills of the soldiers and to intensify the training process.

Komsomol organizations led by Officer V. Ulyanov avidly supported an initiative titled "A New Level of Assimilation of New Equipment." The young aviators are successfully assimilating intricate aerial weapon systems, and they are learning to effectively carry out their tasks in a situation as close to that of real combat as possible.

An initiative titled "Fulfill All Combat Training Tasks with the Responsibility of Frontline Soldiers" has enjoyed a wide response in the Komsomol organizations in which Officer A. Kislyak, a delegate to the 20th Komsomol Congress, works. The practice here is to dedicate sorties to heroes who had served in the unit during the war, to build a bridge between the war days and today's combat training. On the whole this youth initiative is helping to develop real air warriors, high-class specialists.

There are many such examples. Komsomol members in many air force units and subunits are suggesting interesting and effective proposals and initiatives that are providing specific, highly tangible benefits. Their end goal is clearly defined: to achieve perfect mastery of equipment and weapons entrusted to them, to persistently learn that which would be needed in war, and to tighten discipline and organization.

But no matter how appealing and substantial an initiative might be, it would remain meaningless unless it is reinforced by a certain amount of organizational and ideological work by active Komsomol members directed chiefly at raising the personal responsibility of every Komsomol member for his assigned work and for assimilation of his specialty. This pertains primarily to Komsomol leaders.

Senior Lieutenant A. Gorlanov (top photograph [photographs not included]), a delegate to the 20th Komsomol Congress, has proven himself to be an eager, responsible person, a deeply caring individual and a competent organizer. He is always distinguished by a thirst for communication with young airmen, by initiative and by a thoughtful approach to solving urgent problems. The officer devotes special attention to Komsomol members who are experiencing difficulties in their professional development, who are unable to fulfill their socialist pledges and who do not engage in sociopolitical activity. He also orients young active members toward specific educational tasks such as these.

Fewer flowery phrases and more simple routine work: This commandment of Lenin has become the motto for restructuring the life of the Komsomol organization as a whole. Take for example a problem such as improving the technical knowledge of specialists. It cannot be solved by empty slogans and appeals. Gorlanov and other active members understood this. This is why they reinforced their efforts to carry out the task materially, organizationally and ideologically.



Komsomol meetings, Komsomol buro meetings and discussions were held in the subunits. As a result every Komsomol member knew what was required of him, and what he had to do to improve his own skills. The airmen turned special attention to improving the training material base: They partially reequipped the classrooms and produced new visual aids and diagrams. Besides the planned training that is conducted in the unit, additional consultation is now being provided in the subunits on the initiative of the Komsomol committee and buro. Patronage of experienced comrades over novices has grown stronger. Technical quizzes and competitions for best in the occupation have become more frequent. Gorlanov taught his helpers to look at the entire collective as a single unit and at each young airman as an individual.

The command has now made it known that the technical training of air specialists has improved significantly. And the Komsomol organization led by Officer A. Gorlanov played a major role in this. But there still are many things to do, which is why the active Komsomol members are tuning themselves toward a purposeful search for new forms and methods of work.

The personal example of a Komsomol leader. In what is it expressed? This is not a hard question to answer by A. Tokarev (lower photograph), a delegate to the 20th Komsomol Congress and a cadet at the Chernigov Higher Military Aviation School for Pilots imeni Leninskiy Komsomol: being first in training, service and public work, and leading one's comrades. Artem is now in his third year. He has excellent and good grades in most of his subjects. He was the first to fly solo, and last year he clocked more than a hundred hours in the air.

Tokarev is the Komsomol group organizer of a study group. An atmosphere of healthy rivalry, exactingness and mutual assistance has evolved in this small military collective. The work, moral and political qualities of the Komsomol leader make it possible for him to be a true leader in the collective. And in the youth environment the example of the leader means a great deal. A confirmation of this is the fact that most cadets in the group are successfully assimilating the training program, and discipline and organization are at the required level in the collective.

"He loves the pilot's profession. He flies confidently and boldly. He maintains an active life position, and he enjoys deserved authority among his comrades." This is an excerpt from the Komsomol performance report for Captain R. Ismagilov (photograph on the right). He joined the combat regiment in 1980 after graduating from the Kacha Higher Military Aviation School for Pilots imeni A. F. Myasnikov. The young aviator encountered many difficulties at first. But the ability for surmounting them that he had developed back in his years as a cadet, his persistence and his developed sense of responsibility helped him to quickly take his place among the air warriors.

Time passed. The young pilot acquired experience and honed his occupational proficiency. And after he attained the required level of training and gained confidence in his strengths, he submitted a request to join the limited contingent of Soviet troops in the Democratic Republic of Afghanistan. It was there in Afghanistan that his best fighting qualities revealed themselves.

Ismagilov flew over 200 combat sorties. Each of them was filled with difficulties and risk, but the pilot successfully fulfilled all of his assignments. He earned the order "For Service to the Motherland in the USSR Armed Forces," 3d degree, and the Komsomol Central Committee "Military Valor" badge.

Today Pilot 1st Class Captain R. Ismagilov, who is the secretary of the squadron's Komsomol organization, transmits his combat experience to his comrades, and himself studies hard. He directs the efforts of the Komsomol organization at the main task--raising the subunit's combat readiness.

The overwhelming majority of young aviators correctly understand Komsomol duty, and they have accurately determined their place and their role in the fight to strengthen the fighting power of the armed forces. But as was emphasized at the January (1987) CPSU Central Committee Plenum and the 20th Komsomol Congress, the time in which we live requires even greater energy and effort from each person. And of course, young people interested in restructuring must think in the new way, act in the new way and strive for new qualitative changes everywhere in all things.

The 20th Komsomol Congress is orienting the Komsomol organizations of air units and subunits toward restructuring and acceleration in work, toward surmounting inertia, formalism and bureaucracy wherever they exist, and it is mobilizing the efforts of every Komsomol soldier for successful fulfillment of the tasks facing the air force and for an honorable welcome to the 70th anniversary of Great October.

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## AIRCRAFT MAINTENANCE CHIEF EARNS PRAISE

Moscow AVIATSIYA I KOSMONAVTIKA in Russian No 5, May 87 (signed to press 1 Apr 87) pp 22-23

[Article by Maj A. Tarabrin: "'Here is the Way I Understand Restructuring...'" ]

[Text] "Major Peretyatko is at the airfield right now," the regiment deputy commander for IAS [air force engineer service] replied to my question, and then smiling, he added: "That's where his battle station is."

I made my way from the regiment headquarters to the parking apron. Gusty winds scattered the bitter odor of jet fuel exhaust fumes: The specialists had just finished testing the engines.

The pilot descended from the cockpit of the missile carrier to the concrete apron. It was not difficult to determine from his appearance that everything was in order, that he had no complaints as to the condition of the materiel. Major B. Peretyatko, the squadron engineer walked over to him. The pilot said something quietly to him, and then set off for the control tower.

"Major Tverdokhlebov," the squadron deputy commander for IAS explained to me when he caught my eye. "He's the commander of an outstanding flight, a top-class pilot and a right-flank competitor in the jubilee year."

I immediately sensed from the pride with which Major Peretyatko talked about his comrades-in-arms and about the flying that aviation was the goal and the chief content of his life.

Yes, many things in Boris Georgiyevich's life are associated with service in aviation, with flying. There are people whose destinies are in a sense a mirror of the destiny of the generation. When one reads their brief biographies, one reads the book of the life of the country. And I think that Major B. Peretyatko, the grandson of a revolutionary and the son of a war veteran, is such a person.

He grew up and was educated in a large loving family. The parents had seven children. Boris will never forget his mother's stories about his revolutionary grandfather, who fought for the ideals of October. And his father, Georgiy Fedorovich, served throughout almost all of the Great Patriotic War. His combat decorations include two orders of the Red Star. The war veteran's peacetime labor brought him the Order of the "Badge of

Honor." Just and reasonable, he instilled a love for labor and respect for people in his children.

Such are the roots of Boris Georgiyevich's diligent, purposeful nature, his faithfulness to his chosen profession. And of his honesty and principles as well. All of this together manifests itself as the highest professionalism, which has earned him authority among his fellow servicemen. "A reliable person who is exceptionally devoted to duty," is what the people he serves with say about him.

A while back the squadron participated in a tactical flight exercise. The airmen were working at peak effort. The aircrews were fulfilling their combat training missions efficiently, and the aircraft technicians were preparing the warplanes for their sorties on time. Suddenly one of the subunit's airplanes developed engine trouble owing to an oversight of the specialists. The situation was complicated by the fact that this happened at a temporary airfield. A number of parts of the propulsion unit had to be replaced immediately.

Major Peretyatko had no doubts about the technical skills of his subordinates. They had accumulated considerable experience in using the equipment under complex conditions. But there were also novices among the specialists. Would they be able to pass the test in the field?

The officer's memory went back to those difficult days when he had just assumed his position as squadron deputy commander for IAS. A clear inconsistency between the possibilities and the work of specialists of the air force engineer service was glaringly obvious to Boris Georgiyevich at that time. The collective was strong, and the airmen were basically well trained. But strange as it may seem, discipline violations still occurred in the subunit, and near-accidents did occur in the air at the fault of the personnel.

Developing the collective became the main problem to the officer at that time. Things did not go well at first. But Communist Peretyatko did not falter in the face of the difficulties. In his years of service, traits so necessary to an officer and leader developed and grew strong in his character--professional competency and a commander's exactingness, and the ability to approach all things from party positions and with a state yardstick.

Boris Georgiyevich started with the slower learners.

"Aren't you concerned that your subunit is last in the squadron?" Peretyatko once asked Senior Lieutenant V. Samoylenko after summarizing the competition results.

"I am. We try to improve, but nothing comes of it," he replied.

"Could I help?" Boris Georgiyevich asked.

The officer would not answer.

But help was something he really needed. Peretyatko persuaded himself of this when he sat in on a lesson conducted by Senior Lieutenant V. Samoylenko. Explaining the material, the officer did not follow a well organized plan, jumping from one question to another. This was obviously why his subordinates did not listen to him attentively.

Nor did Samoylenko display exactingness in the course of work on aviation equipment. Rather than strictly telling careless workers to stick to the regulations, at times he would try to persuade them while at others he would go along with what his subordinates were doing.

Major Peretyatko had a serious talk with the young officer. He found from the discussion that Samoylenko was suffering considerably from his failures, that he realized that he lacked firm volitional qualities in his mutual relationships with people.

"You won't spoil your relationships with your subordinates by demanding that they go by the book," the squadron deputy commander for IAS noted. "But connivance and excessive familiarity will undermine your authority. Subordinates will never respect a weak-willed chief."

Naturally things did not get better in the group right away. But the situation did improve gradually.

"I should give the job of replacing the parts to Senior Lieutenant Samoylenko's subordinates," Boris Georgiyevich decided. "This would be good practice for them...."

He was obviously taking a risk. But it was not in Major Peretyatko's character to avoid responsibility, to not trust his subordinates.

Soon after, a group of specialists headed by Boris Georgiyevich took off for the temporary airfield. The airmen fulfilled their assignment within the allotted time and with high quality, after which the missile carrier resumed its place in the combat formation and took part in the tactical flight exercise.

This story did have a sequel. Once the subunit held a party meeting on the results of the proceedings of the January (1987) CPSU Central Committee Plenum. The squadron's communists also conducted a sincere discussion on the problems of developing the young airmen. Some said that not every novice can be entrusted with a critical technical job on an airplane. It is simpler and less traumatic for the supervisor to put tested experts on such a job. Others were concerned about the independence of young officers. They voiced the opinion that such officers should not hide behind the backs of the experts, that they should improve their own professional level persistently. Young airmen must be taught to perform important technical assignments. And if this is to occur, they must be trusted, and of course their work should be monitored.

"If we keep on overinsuring ourselves, young specialists will never get beyond being apprentices to the experts," said Communist Peretyatko at the meeting.

"Here is the way I understand restructuring: First of all we need to put an end to exaggeration, we need to fight against inflated grades. To be, and not to appear as such--this is what should become our principle. And more. We need to start with ourselves, and right away."

Boris Georgiyevich described the way Senior Lieutenant V. Samoylenko's subordinates worked during the tactical flight exercise.

Everyone was pleased with the statement made by the squadron deputy commander for IAS. The communists supported him. They decided as a group that laborious operations should be carried out not just by top-class specialists; more work has to be done with the development of young specialists, and this process must be accelerated. Moreover this must be done competently and with good intentions. The mistakes, their origins and the ways to keep them from happening again must be explained convincingly. And if our words are to be heeded, we must ourselves keep our standards high, we must have the moral right to teach others.

Authority is earned in a collective in different ways. The formal leader and the informal leader are concepts encountered in psychology. The former is the officially appointed leader. Sometimes he relies chiefly on the prestige of his high position, but he still remains aloof from his subordinates. In such a case the people go for advice and assistance to another--one who may be of lower rank but who is sympathetic and attentive, and who is capable of responding to someone else's troubles. It is important for the modern leader to combine the authority of his position with true concern for the individual. It is by the interest he displays in the work, by his desire to justify the trust of the party in his area of the work and by his sensitivity to people that the modern leader's position and his contribution to the restructuring process are determined.

Once while monitoring the work of his subordinates on aviation equipment Major B. Peretyatko noted that one of the aircraft technicians was only going through the motions of conducting an inspection. Having read the item concerned with checking the performance of the parachute brake system, he signed off the inspection log with an easy air, without even making sure that the system was serviceable.

"You've just violated the regulations," the squadron deputy commander for IAS sternly admonished his subordinate.

The aircraft technician began making excuses:

"But I just checked it recently: Everything was all right."

"Yes, I know," Major Peretyatko replied. "But you're forgetting that failures and malfunctions do not appear all of a sudden: Their causes accumulate gradually. And then it's but a short step to disaster!"

The leader of the squadron's air force engineer service could of course have strictly punished the aircraft technician for this violation, had he been a specialist of sufficient experience. But this officer was still in his first



year of service. Right there, on the parking apron, the engineer explained to the young airman what such carelessness could lead to. And then the problem was subjected to thorough discussion together with all of the IAS personnel of the subunit during the critique of the work done on that down day.

The aircraft technician was greatly disturbed by his mistake. And as far as those who attended the technical critique are concerned, each of them reached the right conclusion.

Many airmen who learn the ropes under Major Peretyatko quickly work themselves into the job and receive promotions to important positions. As an example Captain A. Shostak has warm feelings about his mentor. This officer already has his own students, but he still regularly turns for advice to Boris Georgiyevich--a person with a generous heart, and an experienced leader of a squadron IAS.

Service in the limited contingent of Soviet troops in Afghanistan was a glorious part of Major Peretyatko's biography. The situation often required courage, high responsibility and competency. The officer displayed his best qualities while rendering international assistance to the Afghan people. He was awarded the order "For Service to the Motherland in the USSR Armed Forces," 3d Degree.

Recalling those times, Boris Georgiyevich, who is not one to exaggerate his own contribution to the common cause, notes that it was a time of routine preparation of aviation equipment. He tended to say nothing about the Dushman raids, the shelling and the constant danger. It was not in his nature to complain about difficulties, and all the more so to parade the results of his military work around, even if it was hard work. And he is not the only one who acts in this manner.

His fellow servicemen build their lives on the basis of the same kind of Bolshevik yardsticks of consciousness and duty.

There is of course no lack of unsolved problems. This is understandable: What the airmen had accomplished yesterday no longer satisfies the requirements of today. But their first successes are obvious. It is the unanimous opinion that the discipline of the IAS personnel has become tighter, and that better indicators have been attained in combat and political training. Credit for this belongs to air squadron deputy commander for IAS Major B. Peretyatko, a competent communist and executive, and a leader in the socialist competition.

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## AIR FORCE ASSISTS IN CHERNOBYL DISASTER

Moscow AVIATSIYA I KOSMONAVTIKA in Russian No 5, May 87 (signed to press 1 Apr 87) pp 28-31

[Article by Lt Col V. Larin, special correspondent: "People of Unusual Heroism"; first paragraph is source introduction]

[Text] Celebrating the 42d anniversary of the Great Victory, the Soviet people are lovingly and proudly honoring their heroes. Those who fearlessly fought the enemy on the battlefields and in the sky of the Great Patriotic War, and those who inherited the glory and traditions of the war and who are honorably continuing and multiplying them. Just in the last 7 years 18 air force pilots were awarded the lofty Hero of the Soviet Union title for courage and heroism displayed in the performance of international duty, of important command assignments and of test flights. Thousands of airmen have been awarded orders and medals. Military airmen who took part in the clean-up of the accident at the Chernobyl AES added a new, brilliant page to the air force's heroic chronicle.

People of unusual heroism.... This is what was said in the Kremlin of them, the heroes of Chernobyl, during presentation of state decorations to the participants of the complex and important efforts to clean up after the accident at the nuclear power plant. Among those awarded the Hero of the Soviet Union title was Major General of Aviation N. Antoshkin, who led the actions of the airmen in the first and truly decisive stage in the struggle against the menacing power of the atom out of control.

"Take Charge, General..."

In the evening of 26 April of last year Lieutenant General of Aviation N. Kryukov, the air force commander for the Red Banner Kiev Military District, and Major General of Aviation N. Antoshkin, the chief of staff, were given the task of leading the work of aviation to clean up after the accident at the Chernobyl Nuclear Power Plant. By decision of the Military Council General N. Antoshkin left immediately for the city of Pripyat to organize the efforts of helicopter and supporting subunits.

"Recognizing that it is important to have an experienced specialist from the chemical service at my side in such an unusual matter, I took Anatoliy Nikolayevich Kushnin along," Nikolay Timofeyevich said to me. We made our way out of Kiev. I instructed the driver to go at top speed. But this turned out



to be impossible: A continuous flow of motor transport rolled along the highway. We turned on our radiation detector. Its pointer deflected more and more to the right with every kilometer. Angry flames enwreathed in smoke could be seen in the vicinity of the nuclear power plant on the background of the night sky. The scene was somehow ominous and threatening.

They arrived in Pripyat late at night. General Antoshkin immediately reported his arrival to the chairman of the government commission. USSR Council of Ministers Deputy Chairman B. Shcherbina familiarized him with the situation: High radiation and temperature made it impossible to approach the Unit Four building from the ground. A decision was made to plug the crater shut with sand from above. That meant that all of the hopes were to be laid on the helicopter crews. They had to begin working right now, immediately.

"I knew that I might be sent right back where I came from, but I was not accustomed to acting against my conscience or making promises I could not keep," noted Nikolay Timofeyevich. "I told Boris Yevdokimovich Shcherbina that aviation could not start work until morning. It could not work at night."

"It can't?" the chairman of the government commission looked searchingly at the general: Was he aware of the entire danger and the possible consequences of the situation? Yes, it seemed to him that he was. Without demanding detailed explanations, he made his decision: "All right, then with the first light. Each second....well, you understand me, General. Take charge...."

#### Reconnaissance

In the meantime Lieutenant Colonel A. Kushnin had managed to talk things over with his associates, and he confirmed that the situation was critical, that there could be no delay. After talking it over they agreed as a group that some of the helicopters of Serebryakov's Guards regiment that had transferred to the training airfield of the Chernigov Higher Military Aviation School for Pilots were to be kept in the vicinity of the nuclear power plant during the day, and returned to their base at night.

After reporting the situation and the conclusions arrived at on its basis to the district air force commander, they went off to look for a suitable landing site. The streets were no good--the tangle of wires was in the way, and there was not enough room for a large group of helicopters. Nikolay Timofeyevich also rejected one area after another outside the city limits: The ground was marshy in one, while another was too far away from a sand source, as well as from the damaged reactor. But the general, who had the quick, well-trained mind of an aerial scout, kept coming back more and more persistently to the square in front of the Palace of Culture. He checked out the approaches to it--they were difficult, but an experienced pilot could land.

The idea itself of setting up a temporary airfield in the city's central square seemed absurd in many ways at first. But the general's well grounded arguments and faith in the experience and knowledge of the military made it possible for Antoshkin to defend his decision. This helicopter pad, which was

code-named "Cube-1," was to play an important role in taming the reactor, and it was to become witness to the mass courage and heroism of the airmen, specialists and workers supporting the delivery and loading of sand.

Dawn found Major General of Aviation N. Antoshkin at the river terminal. Using a portable radio set he guided the helicopters from the main airfield in for the landing. Colonel V. Nesterov, district air force deputy commander, and Colonel A. Serebryakov, commander of the Guards regiment, came in with the helicopter crews. Experienced airmen, they were a dependable support and a real strength upon which Nikolay Timofeyevich could rely in all things.

Adhering, even in this extreme situation, to the rule of preparing meticulously and comprehensively for any measure involving the use of aviation, and of observing flight laws unfailingly, the general and his assistants utilized the first radiation reconnaissance sorties and other assignments of the government commission to the maximum to work out the procedures for leading and conducting the flights, preparing the crews, determining the methods by which the loads were to be dropped, and working out the safety measures.

B. Nesterov and A. Serebryakov launched the helicopters dozens of times on that day. And during all that time General Antoshkin personally controlled the flying. Next morning, after the basic organizational and technical problems were more or less cleared up, Nikolay Timofeyevich transferred control of the crews to the flight controller, who had just arrived, with peace of mind.

#### They Were the First

A composite aviation group was created on the spot to cope with the accident at the Chernobyl AES. The command and the party organizations sent the best helicopter pilots to Chernobyl. Most of them were communists and Komsomol members. Almost all of them had undergone the school of courage and combat proficiency in the limited contingent of Soviet troops in Afghanistan, and most of them had earned high state awards. The patriots and internationalists hastened to the assistance of Chernobyl in response to the first summons from the motherland, out of a sense of duty and conscience. Wherever they went they encountered understanding and support. A clear but far from isolated example of this was the journey of the Mi-26 helicopter group of which Major V. Semakov was a part.

Many airmen of this group had just returned to their unit the day before from a lengthy period of temporary duty elsewhere. But not one of them refused to fly. According to the plans the crews were to take a rest at an airfield along the way. But in response to a proposal by the communists, which was supported by all the personnel, a decision was made to continue the journey immediately. Two hours after landing near Chernobyl the group began its assignment of burying the reactor in its full complement. Prior to the onset of darkness the crews had completed five to seven sorties each.

The courage and heroism of colonels B. Nesterov and A. Serebryakov, who were

the first to learn the intricate "slalom" course over the reactor, set the example for the personnel of the aviation group. Squadron commanders Guards lieutenant colonels A. Bilochan and Yu. Yakovlev led their crews on over 30 sorties each that day. Guards Captain L. Vaytko, secretary of the primary party organization, appealed to his comrades to commit all of their strength, energy and, if necessary, their lives to fulfilling the government assignment. Vaytko and his subordinates were a model of self-sacrificing and competent actions. Flight technicians Guards Lieutenant S. Telegin and Guards Senior Warrant Officer A. Vyshkovskiy were among the first to start dumping loads out of the open hatch; they hand-dropped more than 50 tons of sand. Colonel N. Volkozub, a military pilot-sniper and a master of helicopter sports, carried out the unique operation of measuring the reactor's temperature. And what criteria would you use to evaluate the work of Lieutenant O. Bilskiy and other aviation specialists who stayed near the damaged power production unit and continuously cooled the reactor zone?!

"There was no doubt that these remarkable people would do everything possible and even impossible to pacify the reactor," said General Antoshkin. "But winding the intricate mechanism of the aviation group and its supporting services up to their 'full rpm' required time. At least a little. But there was none...."

#### It's Too Early to Retire Experience Gained in the War!

On the evening of 27 April Nikolay Timofeyevich reported the quantity of sand dumped into the crater to the chairman of the government commission. He was not expecting any praise, but the displeasure he encountered was unexpected as well. He was told outright that the dozens of tons were but a drop in the bucket to the reactor.

Next day more than twice as much sand as the day before was dropped into the crater owing to faster loading of the helicopters and dropping of the bags of sand, and use of various devices (such as tipping boxes and suspended grab buckets). This was the limit of human physical effort. But for the reactor it was still just a drop.

Another anxious night thickened over Pripyat. The commander of the aviation group could not sleep. Landing pads and helicopters were available, and a mass attack upon the damaged unit could be organized. But what sense would there be in that if they continued to push bags of sand over the side by hand?! What about one large sack? One which could be disengaged automatically from an external suspension system?

In the three and a half hours remaining before dawn the idea of using brake parachutes as containers in which to transport the sandbags was made a reality with the assistance of the air force commander and staff of the Kiev Military District and the leaders of the district's air units and VUZes and of the local party and soviet organs. Parachutes and the first lot of devices by which to secure the load to an external suspension system manufactured by laborers of Chernigov, Kiev and Chernobyl were delivered to the helicopter pad before the flying day started.

On 29 April the helicopter crews dumped three times more sand into the crater than the day before. But in the opinion of the government commission and scientists this was still not enough. The drops had to be increased many more times. To make matters worse, the situation required abandonment of Pripyat. The distance to the reactor from other helicopter landing sites would be greater.

The advice and recommendations of Boris Yevdokimovich Shcherbina and the war experience of Ivan Semenovich Polbin, an innovative pilot and a twice-awarded Hero of the Soviet Union, helped to reveal the key to solving the problem. A tactical procedure he developed, now known as "Polbin's top," made it possible to raise by several times the effectiveness of dive bombers during the war. Of course there could not even be any discussion of simply transferring the "top" idea over to this situation. Polbin therefore used Nesterov's and Serebryakov's assistance to make the necessary calculations and to work out coordination between crews in the air and the support services on the ground.

The giant tops spun from morning to late at night over the power plant. When General Antoshkin reported the quantity of sand that had been dumped to the chairman of the government commission, Boris Yevdokimovich Shcherbina's face lit up for an instant. Nikolay Timofeyevich did not even expect that much of a favorable response--the danger was still too great, and the airmen still had the task of increasing the efforts to plug up the damaged unit.

Complying with instructions from district air force commander General N. Kryukov, Polbin worked with Nesterov and Serebryakov in the course of the night to improve the "top." Each group of identical helicopters was given its own landing pad, and the times and locations at which the groups were to be introduced into the circle were carefully calculated. This made it possible to increase the quantity of sand dumped by another quarter. Major General of Aviation N. Antoshkin's report at the next meeting of the government commission was met with applause. USSR Council of Ministers Chairman B. Shcherbina expressed gratitude to all personnel of the aviation group on the spot.

Fulfilling their patriotic and military duty, the airmen gave no thought to glory and reward. After they fulfilled their task they were sent to the hospital for medical examination, and then to their unit. But the motherland did not forget the heroes of Chernobyl. Many pilots, navigators and aviation specialists were awarded orders, medals and certificates from the government commission. The Order of Lenin and the "Gold Star" medal were awarded to General N. Antoshkin for the courage, high personal qualities and creative initiative he displayed in the course of the assignments given to aviation in the accident area.

#### Committed to Aviation for Life

We know that heroes are not born. It is inconceivable that a person would be ready for heroism, for a courageous act unless he is deeply convinced of the

need to be the first to step up to danger, to raise and urge on others by his example, unless he is endowed with moral strength, strong will and, in frequent cases, high professionalism. These qualities are not given at birth; they are nurtured chiefly by the social milieu, by the labor and army collective, by the entire way of our socialist life.

Nikolay Timofeyevich was born in December 1942 in the village of Kuzminovka, Fedorovskiy Rayon, Bashkir ASSR. There were eight children in the family of kolkhoz brigade leader and war veteran Timofey Grigoryevich and Darya Konstantinovna Antoshkin. The difficult war and postwar years and the example of the parents made a noticeable imprint upon the character of Nikolay and his brothers and sisters. Personal modesty and unpretentiousness, concern mainly for other people, adaptation to and respect of all work, independence, and persistence in attaining a goal are all qualities which Major General of Aviation N. Antoshkin displayed to their fullest in the first days following the accident at the nuclear power plant.

"It may be said that I came to aviation straight from the fields," said Nikolay Timofeyevich. "As I came to understand later on, a turning point of one of the flight paths was directly above our common pasture. For days and years on end I saw before me sky and airplanes. I was interested and curious in how it was that they flew, and why some flew with engines while others flew 'with nothing'--this was when jets first appeared. Later on an older friend of mine Nikolay Kutovoy entered flight school, and I followed in his footsteps. In 1961 military pilot Yuriy Gagarin laid the road into space. All of this obviously predetermined the choice of my life's path. But not right away."

After graduating from school, Nikolay went to work at the Kumertau open-pit coal mine, after which he worked in an integrated brigade and as a physical education instructor at the local heat and electric power plant. In 1961 he passed the entrance examinations for the Orenburg Higher Military Aviation School for Pilots imeni I. S. Polbin. In the general's words, he found the theoretical and flight training easy. He was one of the first of his class to fly solo, and he was the first to complete the night flying program. He devoted much attention to physical training and sports, he was school champion in heavy and light athletics, and he played soccer.

The young officer's party, flying and command qualities enjoyed further development in line units.

"I've known Nikolay Timofeyevich for a long time," said Major General of Aviation V. Kobayakov, a member of the Military Council and chief of the political department of the air forces of the Red Banner Kiev Military District. "Twenty years ago, when he was a senior lieutenant, he served as squadron chief of staff in the formation in which I was the chief for political affairs. It was as early as then that his political competency and maturity, his good flying capabilities and his attraction to people began attracting attention. And what was and is especially attractive about him is his tendency to absorb, like a sponge, the experience of young and old, of all new and progressive things in organizing airman combat training and educational work.



"Soon after, Antoshkin was transferred to the Far East, and our roads parted. We met once again here in Kiev. What amazed and pleased me the most was how much he, now a general and person with considerable experience in life and military service, managed to remain the same kind of person. That same inexhaustible energy, that readiness to act, that thirst for life, that diligence and purposefulness. But now these traits rested on a qualitatively new foundation of higher military training, developed operational thinking and the personal experience of leading air units and formations. With his arrival, the effort to restructure the work of the district's air force headquarters and of the commanders and political staffs of the units and VUZes has been proceeding more actively. And I think that the Military Council's decision to put General Antoshkin in charge of aviation in the accident area is itself a measure of the value placed upon his political, work and moral qualities."

Nikolay Timofeyevich's progress as a pilot and an aviation commander was not just fast--it was astronomically so. First he was a flight commander, then a student at the command faculty of the Air Force Academy imeni Yu. A. Gagarin, from which he graduated with honors. Then a squadron commander, and soon after, regiment deputy commander for flight training. At 32 years, Major Antoshkin was appointed regiment commander. In short time the personnel in the unit retrained with new aviation equipment and attained high results in combat and political training under his leadership. The officer's military labor was honored by the order "For Service to the Motherland in the USSR Armed Forces," 3d Degree, and the honorary certificate of the Komsomol Central Committee.

Having assumed command of one of the best air force units in the Group of Soviet Forces in Germany, Colonel N. Antoshkin competently mobilized the airmen to attain new summits in combat perfection, relying on the political department and party organization. Soon after he was promoted to a higher position. Then came training in the Military Academy of the General Staff of the USSR Armed Forces imeni K. Ye. Voroshilov. Following his graduation he was given a position as an aviation commander--the deputy commander for aviation of the Central Group of Forces. Today Hero of the Soviet Union Major General of Aviation N. Antoshkin is chief of staff and first deputy air force commander of the Red Banner Kiev Military District.

It is said that the greatest reward of a teacher is the success of his students. Nikolay Timofeyevich's students already include regiment commanders; three of them have become candidates of military sciences. Twenty-six pilots and navigator-snipers and over 150 pilots 1st class were trained under his direct guidance and with his personal participation. There was never a single flying accident in the subunits and units which N. Antoshkin had the fortune to command. Incidentally one of the first things he did in Chernobyl was to pose this goal to himself and the staff of the aviation group: fulfilling the state assignment without losses of personnel and combat equipment. As we now know, both tasks were completed successfully.

## The Course of the Bold and Strong of Spirit

General Antoshkin rightfully believes himself to be a student of war veterans, and he feels that it is his duty before them as well as before young military airmen to carefully continue and multiply the experience and traditions that he learned from heroes of the skies of war. He spoke with great warmth about his mentor in his combat regiment, Hero of the Soviet Union M. Glebov, and about his meetings with thrice-awarded heroes of the Soviet Union A. Pokryshkin and I. Kozhedub, as well as other famous Soviet pilots who helped him in different stages of his development as a flier and commander to understand and assimilate the essence and principles of the science of winning.

"I remember what Aleksandr Ivanovich Pokryshkin said about the origins of courage and heroism in aerial combat: "To me, duty to the motherland was always the most important and most sacred thing. I never stopped in the face of difficulties when they blocked my path, and I never deceived either my own conscience or my friends. In combat I tried to fulfill my mission as well as possible, and to inflict the greatest possible losses upon the enemy." And now, Chernobyl. Over 40 years had passed since the war. Other people, a different situation, unusual tasks. But each of us that were in the accident zone experienced the same feelings and the same need to act in conformity with duty and conscience, in the way that Marshal of Aviation Pokryshkin acted.

Every act of heroism is unique. But each one also has something in common--a feeling of the deepest love for the motherland, an awareness of responsibility for its defense and welfare, faithfulness to communist ideals, an understanding of the goals and tasks determined by the military oath and by the orders of commanders. As with the war veterans, airmen of the present generation take risks in a critical situation without wavering, they commit acts of heroism, believing this to be a standard rule of behavior of a Soviet citizen and soldier. Clear confirmation of this can be found in the courage and valor of the air warriors who are providing international assistance to the people and army of the Democratic Republic of Afghanistan, and in the selfless actions of airmen to clean up the accident at the nuclear power plant.

"Not one pilot," Major General of Aviation N. Antoshkin reported as he was being given a high award, "turned off course from Chernobyl, not a single ground service specialist abandoned his post without orders."



There is deep meaning behind these words, I think. The generations of airmen are succeeding one another: The ranks of the air warriors are now being filled not by the sons but by the grandsons of the war veterans. Measuring themselves up against the deeds of the heroes of the Great Patriotic War and of their contemporaries, and strong in spirit and proficiency, they are always alert, ready to honorably fulfill their patriotic and international duty at any moment. And there is no power which would compel the heirs of the combat glory and traditions of the armed forces to turn away from their prescribed course.

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## PROBLEM TRAINING METHOD IMPROVES STUDENT PARTICIPATION

Moscow AVIATSIYA I KOSMONAVTIKA in Russian No 5, May 87 (signed to press 1 Apr 87) pp 32-33

[Article by Lt Col V. Bobyr: "Using the Problem Method"; first paragraph is source introduction]

[Text] The party's greater attention to indoctrinating and training conscious, highly educated specialists was reflected in documents of the 27th CPSU Congress and in decisions of subsequent Central Committee plenums. The reform of the schools of general education and vocational schools being implemented in the country, which has the objective of raising the educational level of young people, orients us on a search for new, more-effective forms and methods of education, on a creative approach to studying theoretical problems, and on all-out development and stimulation of the cognitive activities of the students themselves. One of the most important ways of completing this task is to introduce the problem method of training into practice.

Problem training is a broad concept. It includes statement and deep creative explanation of the basic content of the subject matter, coupled with wide use of various techniques to activate the cognitive activity of the students and develop their interest in the topic. The main thing in problem training is to isolate the most significant, most important problems associated with life and practice, and to study them on the basis of the latest scientific data, theoretical knowledge and facts already known to the students.

Another important side of problem training is the procedures used to present the material. Their objective is to develop active creative thinking in the students. To accomplish this, a significant part of the knowledge is transmitted not in finished form but rather in the form of a successive chain of cognitive problems which are solved independently or with the instructor's help. The questions are worded in such a way as to awaken a desire to deeply analyze the essence of the posed problem, and to in a sense become a coparticipant of collective scientific enquiry, of a process of discovering the truth.

One example of a place where a certain amount of experience in introducing the elements of the problem training method has been accumulated is the helicopter squadron in which Captain Yu. Grigoryev is the deputy commander for air force engineer service. A top-class specialist who displays a real involvement in

his work, the officer maintains a creative approach to organizing training, and he makes a substantial contribution to upgrading the quality of the technical training provided to his subordinates. The subunit competently utilizes every possibility for training, and it places a high value on every free minute. Assume for example that flying is cancelled for some reason. Captain Grigoryev would have foreseen classroom training for such a case: He would have selected an important topic, appointed an instructor and prepared visual aids ahead of time.

One day as an example the weather got in the way of flying. The squadron deputy commander for IAS [air force engineer service] quickly organized a technical training lesson in one of the classrooms. Senior Lieutenant Yu. Rybakov, a flight technical maintenance unit chief, worked with the specialists in that instance.

"This officer makes every lesson interesting and lively," said Captain Grigoryev. "All of his efforts to improve the occupational training of subordinates are distinguished by flexible use of training methods. But things were not always this way. I once was able to attend a lesson on the topic "The Helicopter's Pneumatic System." The officer had colored visual aids and programmed training resources at his disposal. The instructor alternated narration with questions and answers. It felt as if he had prepared himself thoroughly in this topic. One would have thought that the interest of the students and their participation would have been high as well. But strange as it may seem, the reverse was true. One dozed, another talked to a friend in whispers, a third had his mind somewhere else.... Obviously the lesson, which appeared outwardly to be effective, had not been thought out substantially. Analyzing it, we came to the opinion that we had to make wider use of the problem training method. And Senior Lieutenant Rybakov was one of the first to begin learning how to use it.

Let me describe as a graphic example a lesson on the topic "Operating Limits of an Engine and Their Causes" conducted by Senior Lieutenant Yu. Rybakov using the problem training procedure.

The officer knew from his own experience that no matter how interestingly and attractively they are offered, ready-made procedures and methods of problem solving will not produce the desired result. Concurrently creation of certain situations by the problem method which place students in a difficult position for a certain while and which require mental effort on their part to find a solution increases training effectiveness. There can be no doubt that when a student arrives at a correct conclusion on his own, he assimilates the theoretical material better, and he is capable of consciously utilizing the knowledge he obtains in practice. It was in correspondence with this that Rybakov planned the lesson.

"What are the main operating limits of an engine?" he posed the first question.

Warrant Officer A. Kalinin, a flight engineer and a master of combat qualification, expressed a desire to answer the question:

"The main limiting factor for a propulsion unit is the maximum permissible time of its continuous operation in different operating modes."

"What brings about this limit? Explain the physical essence of this phenomenon."

By posing these questions Senior Lieutenant Yu. Rybakov created a problem situation for the students.

After thinking a while, Warrant Officer A. Kalinin said that there is a certain contradiction between the greater power of modern aircraft engines, which depends on the temperature of gases in front of the turbine, and the strength and heat resistance characteristics of critical units and parts. It is for the purpose of resolving this contradiction that strength operating limits are introduced, observance of which guarantees dependable operation of the aircraft equipment.

"And what are the grounds for these limits in takeoff mode?" the lesson leader asked, making the problem more specific.

"In this operating mode," the flight technician replied, "residual deformations arise in rotor parts as a result of the prolonged effect of high loads at maximum temperatures, and this may cause destruction of the supports of these parts."

Later on, answering other questions, the students arrived at the grounds for the following important limit: The temperature of gases in front of the turbine must not exceed 780°C. Otherwise nonuniform heating of the blade profiles could cause formation of microscopic cracks and subsequent disintegration of the blades. Using a display titled "Characteristic Faults in Propulsion Units," Senior Lieutenant Yu. Rybakov demonstrated this defect. Then he told the students what designers do to raise the strength and heat resistance of engine parts, and what technical concepts are embodied today in propulsion units of the given type. Then he led the specialists in a search for the solution to another problem. He posed the question:

"What can we who use the engines do to ensure their reliable operation?"

"First of all," replied Senior Lieutenant A. Sidorov, a flight technician, "we must not allow the engine to operate in takeoff mode for a long period of time--more than 6 minutes. Second, after shutting down the engine we should check the rotor's run-down, which should be less than 50 seconds."

Senior Lieutenant Yu. Rybakov then went on to pose new questions concerning the topic. The students talked about the need for washing down the parking pad before starting the engines so that sand, dust and larger particles would not be carried into the propulsion unit by the air flow created by the main rotor. They also discussed why hot gases ejected from the exhaust nozzles must not be allowed to enter the air intake by wind action during start-up and hovering (this is especially important to consider during the hot period of the year).

In order to get every specialist to participate actively, Senior Lieutenant Yu. Rybakov gradually increased the level of difficulty. After all, a task can elicit interest only if it requires a certain amount of effort, sharpness and wit.

Some of the airmen made mistakes while solving problems posed during the lesson. The instructor not only pointed out the errors but also--this is very important--patiently taught the students to thoughtfully analyze and deeply understand the causes of these errors.

Gradually through the joint efforts of the instructor and the students the physical essence of the operating limits and the need for them were revealed. Finally the study problem was solved. The airmen came to the firm realization that prolonged and reliable operation of aircraft engines is possible only when the requirements of the equipment operating instructions are complied with strictly.

Despite the great value of the method, it must be kept in mind that when it comes to intensifying the training process, it is not a panacea. In his effort to improve the occupational knowledge of subordinates, the squadron deputy commander for IAS tries to see that technical training instructors diversify the forms of their work, prepare most carefully for each lesson and persistently hone their teaching skills.

Some time ago V. Sukhomlinskiy, a prominent Soviet educator, attempted to clarify the question as to what the process we call training and indoctrination is. He noted that in the final analysis, training is the joint labor of students and teacher, and that success depends on mutual effort. The validity of this idea is confirmed by the experience accumulated in the squadron in which Captain Yu. Grigoryev is the deputy commander for IAS. Today in the course of the restructuring being carried out in the country on the basis of the high requirements posed by the January (1987) CPSU Central Committee Plenum, this squadron is decisively eradicating everything that hinders improvement of the process of training and indoctrination, and it is persistently seeking new, progressive ideas.

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## RADIO CONTRIBUTES TO SPACE EXPLORATION

Moscow AVIATSIYA I KOSMONAVTIKA in Russian No 5, May 87 (signed to press 1 Apr 87) pp 44-45

[Article by B. Pokrovskiy, command and control complex veteran, USSR honored radio operator: "Space and Radio"]

[Text] The study and conquest of space appears unimaginable to us today without radio and television. And yet, the first plans in our country for spacecraft that were to fly into the Universe were created back before radio was invented. For example N. Kibalchich developed a plan for a rocket-propelled vehicle in 1881, and it was in 1895 that A. Popov demonstrated the first radio receiver.

At the beginning of the century scientists began thinking about how to use radio to control mechanical processes from a distance. This direction of radio engineering, which later came to be called telemetry, has enjoyed the widest and most direct use in cosmonautics. The range of operation of Soviet telemechanical systems was but a couple of dozen kilometers by 1925, but just 2 years after that it increased sevenfold. The first Soviet radiosonde equipped with a telemechanical device was launched in 1930. Work on radar began in our country in the early 1930s. Development of electronic television systems began in approximately the same years.

The successes attained through further development of radio engineering and electronics made it possible for Soviet scientists and designers to begin development and creation of radio engineering equipment with which to test the first long-range ballistic rockets in the late 1940s and early 1950s, and then launch vehicles for the first artificial earth satellite.

In response to a proposal from S. Korolev, our institute was given the job of developing the conceptual design of a complex of measuring resources, communication and standard time systems. A. Sokolov, a doctor of technical sciences and subsequent recipient of the Lenin Prize, was the director of the institute at that time. Yu. Mozzhorin, the institute's assistant director, who was later awarded the Hero of Socialist Labor title and the Lenin Prize, was appointed director for the scientific research project. Work on different parts of the project was headed by P. Agadzhanov (presently a corresponding member of the USSR Academy of Sciences), G. Narimanov, G. Levin, V. Dolgov and P. Elyasberg, who were young specialists at that time. All of them became recipients of the Lenin Prize later on as well. The results of the work, the progress of which was kept under the watchful eye of Sergey Pavlovich Korolev,

had to include--and this was well understood by the participants of the project--not only scientific reports but also real-life ground control stations equipped with radio engineering devices and staffed by trained testing specialists capable of controlling the first artificial earth satellites.

A large cooperative of scientific research institutes, design offices and plants was created. Senior designers A. Bogomolov, N. Belov, A. Mnatsakanyan, Ye. Gubenko, N. Begun and other experienced specialists, who later on became prominent scientists in their fields of science and technology, took charge of these diligent and talented collectives. The many radio engineering systems that were developed under their guidance were studied and evaluated during the plant manufacturing stage by the engineers and technicians who were then to work with them at the control stations. As was foreseen by the conceptual design for the complex, the control stations were to be located within our country at latitudes and longitudes in such a way that their zones of radio visibility would "cover" the greatest possible area within which the first satellites were to fly. To satisfy this main requirement a number of the stations had to be located in remote and hard-to-reach places.

Then finally came the long-awaited day of the launching of the world's first satellite. This launching was also the first test of the possibilities of radio in space.

Signals were received from the satellite ("beep-beep-beep," dubbed later on over the melody of the song "The Motherland Hears, the Motherland Knows"; this signal was subsequently adopted as the call sign for the "Late News" program on All-Union Radio) and the flight of the satellite was observed by means of some radio engineering resources of the command and control complex and the USSR Ministry of Communication, by ionospheric and ranging stations and optical centers of the Astronomy Council of the USSR Academy of Sciences, and by thousands of amateur radio operators and many observatories on all continents of the planet. The times at which the satellite passed over the world's largest cities were determined from radio measurements of its orbit, and they were reported ahead of time by Soviet newspapers and broadcasting radio stations. As a result of processing of the information transmitted by the satellite, data were obtained for the first time on the density of the earth's upper atmosphere and on propagation of radio waves in the ionosphere; theoretical calculations and the basic technical concepts embodied in the design of the space rocket system and the ground radio engineering complex were tested out practically.

The second satellite, which carried the dog Laika and which was launched on the eve of the 40th anniversary of Great October, 3 November 1957, additionally provided data on shortwave radiation from the sun and cosmic rays, and the first information on the effect of space flight factors on a living organism. It was then that receiving radiotelemetric stations of the command and control complex were used for the first time.

It was during the flight of the third satellite, which was actually the first scientific laboratory in space, that all technical resources of the command and control complex were put into operation for the first time--several types



of radar and telemetric stations, command radio links and the entire arsenal of communications equipment. Preparation of this equipment was organized and the equipment was placed into operation directly by highly qualified specialists I. Spitsa, B. Voronov, M. Krasilnikov, A. Kostyuk and G. Blashkevich, and other engineers from the Control Center and control stations of the command and control complex. They were led by Georgiy Ivanovich Chigogidze, a highly experienced communication specialist of indisputable authority, a fabulous organizer and a very good person. The highly dependable multiplex communication loop that was created under his guidance was a world class communication system at that time. It linked the control stations and the Control Center into a single unit.

The next stage in development of radio communication in cosmonautics began in 1959: A space rocket was launched toward the Moon on 2 January. For around 62 hours the command and control complex and its "lunar" vanguard--the temporary Space Communication Center on Mount Koshka near Simeiz--maintained stable radio communication with this interplanetary scout, until it was approximately 600,000 kilometers from Earth. This was a world record distance of radio communication at that time. The high point in this stage occurred in October of that same year, when our third lunar station began transmitting television images of the back side of the Moon. The apparatus for this was developed and created by a collective of specialists under the guidance of chief designer M. Ryazanskiy (presently Hero of Socialist Labor, recipient of the Lenin and State prizes of the USSR, and corresponding member of the USSR Academy of Sciences) and master designer Ye. Boguslavskiy, who also earned the Hero of Socialist Labor title and the Lenin Prize. It was this same collective that worked together with other scientific research institutes and design offices to create a unique radio engineering system that was installed in 1960 in the newly built Long Distance Space Communications Center not far from Yevpatoriya.

On 12 February 1961 the center entered into communication with Venera, the first automatic interplanetary station. And 2 years later a record radio communication distance of 106 million kilometers was documented during the last communication session with Mars-1. This occurred on 21 March 1963. The road to planets of the Solar System was opened with the assistance of radio!

In the mid-1960s the Long Distance Space Communications Center was supplemented by equipment of even greater sophistication: As a result the range of radio communication was increased by 100 million kilometers and the sensitivity of receivers was raised by an entire order of magnitude. But the summit of "cosmic" radio making was not reached until the RT-70 radio telescope was created under the guidance of M. Ryazanskiy. It was the first and still the world's only 360o, transceiving, multiband, quasi-parabolic, two-mirror antenna system.

Scientists and designers are paying special care and attention to creating communication resources for manned spacecraft and orbiting stations. The first such system bearing the bright name Zarya [Dawn] was created by a design collective led by Professor Yu. Bykov, the chief designer. As with many other things in Soviet cosmonautics, this radio system was the first in the world. Requirements that were rather high for those days were imposed on it:

immediate communication between cosmonauts and the earth without the need for tuning; hands-free communication to permit other work while in orbit; the radio station itself had to regularly withstand accelerations and weightlessness without detriment to its operation, and it concurrently had to ensure good constant audibility.

Radio communication with manned spacecraft is maintained in the ultrashort-wave and shortwave bands. In this case the ultrashort-wave band ensures good quality, highly reliable duplex communication of sufficiently long range within the limits of direct radio visibility. Shortwave communication is used as a back-up as a rule.

Beginning with Yu. Gagarin's flight, one-way television communication was maintained with cosmonauts in addition to telephone and telegraph communication. The corresponding transceiving radio stations and receiving television stations were installed at a number of control stations at which future cosmonauts A. Leonov, Ye. Khrunov and others stood by during the flight of Vostok. They maintained communication with "Kedr" (Gagarin's call sign), and watched him on television when the spacecraft came within the zone of radio visibility of their control stations. And the chief designer, whose call sign was "Zarya-1," maintained communication with Gagarin and kept him under observation from the spaceport in Baykonur.

Television was used during Yu. Gagarin's and G. Titov's flights only for service functions. The first television reports directly from space were transmitted in August 1962 from the third and fourth Vostoks, aboard which A. Nikolayev and P. Popovich made history's first group flight. On 18 March 1965 a television audience of millions watched A. Leonov perform a spacewalk outside of Voskhod-1. In late 1977 ground stations received the first color television reports from space, transmitted by G. Grechko during extravehicular activity outside the Salyut-6 and Soyuz-26 complex.

A fundamentally new stage in the development of Soviet and world space television began in March 1979, when two-way television communication was established with the station Salyut-6. Stock and newly created transceiving television stations were used on earth and a specially developed television receiver was used in space for this purpose.

Receiving an image from space, a ground control station "duplicates" it: It displays the "pictures" on its own monitors for quality control and also transmits them to the Flight Control Center. There the image is once again "duplicated": It is displayed on a large screen in the main hall and on monitors at the work stations of the specialists. The most interesting reports are transmitted via communication channels to the Moscow Television Center, which makes them available to millions of television viewers. I do not think that there is any need to discuss the importance and significance of two-way television communication with cosmonauts, especially now that their flights last many months.

To arrive at a fuller understanding of the sophistication of radio engineering resources with which the command and control complex is equipped, and of the effectiveness and intensity of its operation in general, we should add that

ground and marine stations located practically all over the globe provide all forms of radio communication with dozens of spacecraft operating simultaneously in their orbits. This made it possible to create permanently operating Soviet state systems for space meteorology, navigation, environmental protection and control, super-long distance communication and television.

Thus the alliance of radio and cosmonautics--the two greatest accomplishments of Soviet science and technology--is serving the cause of peace and progress on earth, and the cause of communist construction in our country. And this is especially pleasant to emphasize on Radio Day, at the threshold of the 30th anniversary of the space age and the 70th anniversary of the Great October Socialist Revolution.

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